

Claim

1 1. (original) A flexible circuit comprising:
2 a substrate having a plane;
3 a flexible and extensible structure formed within said substrate and co-planar
4 with said substrate; and
5 wherein said structure is adapted to be extended out of said plane by a distance
6 greater than a maximum lateral dimension of said structure.

1 2. (original) The flexible circuit according to Claim 1 further comprising a
2 pathway formed on said structure.

1 3. (original) The flexible circuit according to Claim 2, wherein said pathway is a
2 capillary for transferring a fluid.

1 4. (original) The flexible circuit according to Claim 2, wherein said pathway is
2 an electrical lead for transferring an electronic signal.

1 5. (original) The flexible circuit according to Claim 2, wherein said pathway is
2 an electrical lead for transferring an electrical signal.

1 6. (original) The flexible circuit according to Claim 2, wherein said pathway is
2 an optical fiber for transferring an optical signal.

1 7. (original) The flexible circuit according to Claim 6, wherein bending radii of
2 said optical fiber are large enough to prevent substantial optical loss from said optical fiber.

1 8. (original) The flexible circuit according to Claim 1, wherein said structure is a
2 spiral.

1 9. (original) The flexible circuit according to Claim 8, wherein said spiral is an
2 Archimedes spiral.

1 10. (original) The flexible circuit according to Claim 8, wherein said spiral is a
2 parabolic spiral.

1 11. (original) The flexible circuit according to Claim 8, wherein said spiral is a
2 polygonal spiral.

1 12. (original) The flexible circuit according to Claim 11, wherein said spiral is
2 one of a square spiral, a triangular spiral, a pentagonal spiral and a hexagonal spiral.

1 13. (original) The flexible circuit according to Claim 1, wherein said structure has
2 geometric features selected from a group comprising spiral, bend, curve, twist, turn, curl,
3 loop, u-turn and zig-zag.

1 14. (original) The flexible circuit according to Claim 1, wherein said structure is
2 defined by perforations.

1 15. (original) The flexible circuit according to Claim 1, wherein said structure
2 comprises a boss for receiving a force to extend said structure out of said plane.

1 16. (original) The flexible circuit according to Claim 1 further comprising at least
2 a first pathway and a second pathway.

1 17. (original) A flexible circuit comprising:
2 a substrate having a plane;
3 a flexible and extensible structure formed within said substrate and co-planar
4 with said substrate, said flexible and extensible structure is adapted to be extended out of said
5 plane by a distance greater than a maximum lateral dimension of said structure; and
6 a pathway on said structure.

1 18. (original) The flexible circuit according to Claim 17, wherein said pathway is
2 a capillary for transferring a fluid.

1 19. (original) The flexible circuit according to Claim 17, wherein said pathway is
2 an electrical lead for transferring an electronic signal.

1 20. (original) The flexible circuit according to Claim 17, wherein said pathway is
2 an optical fiber for transferring an optical signal.

1 21. (original) The flexible circuit according to Claim 20, wherein bending radii of
2 said optical fiber are large enough to prevent substantial optical loss from said optical fiber.

1 22. (original) The flexible circuit according to Claim 17, wherein said structure is
2 a spiral.

1 23. (original) The flexible circuit according to Claim 22, wherein said spiral is an
2 Archimides spiral.

1 24. (original) The flexible circuit according to Claim 22, wherein said spiral is a
2 parabolic spiral.

1 25. (original) The flexible circuit according to Claim 22, wherein said spiral is a
2 polygonal spiral.

1 26. (original) The flexible circuit according to Claim 25, wherein said spiral is
2 one of a square spiral, a triangular spiral, a pentagonal spiral and a hexagonal spiral.

1 27. (original) The flexible circuit according to Claim 17, wherein said structure
2 has geometric features selected from a group comprising spiral, bend, curve, twist, turn, curl,
3 loop, u-turn and zig-zag.

1 28. (original) The flexible circuit according to Claim 17, wherein said structure is
2 defined by perforations.

1 29. (original) The flexible circuit according to Claim 17 wherein said structure
2 comprises a boss for receiving a force to extend said structure out of said plane.

1 30. (original) The flexible circuit according to Claim 17 further comprising a
2 second pathway on said structure.

1 31. – 36 (Canceled)